



StarHub Mobile Pte Ltd
(Reg No. 199802208C)
67 Ubi Avenue 1
#05-01 StarHub Green
Singapore 408942
Tel: (65) 6825 5000
Fax: (65) 6721 5002

26 April 2010

Ms Aileen Chia
Assistant Director-General (Telecoms & Post)
Infocomm Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower 3
Singapore 038988

By fax: 6211 2116
By email: IDA_consultation@ida.gov.sg

Dear Ms Chia

**CONSULTATION ON ALLOCATION OF 3G SPECTRUM IN THE 1900/2100 MHZ
FREQUENCY BAND**

1. We refer to the above consultation paper that was issued by the IDA on 29 March 2010. StarHub Mobile Pte Ltd is pleased to submit our comments on IDA's proposal in making available three 2 X 5 MHz lots of spectrum in the 3G Band, and the 3G spectrum allocation framework.
2. Please do not hesitate to contact me, should anything in this letter require clarification or elaboration.

Yours sincerely
For and on behalf of
StarHub Mobile Pte Ltd

A handwritten signature in black ink, appearing to read "TG" with a stylized flourish.

Tim Goodchild
Head (Government & Strategic Affairs)

CONSULTATION ON ALLOCATION OF 3G SPECTRUM IN THE 1900/2100 MHZ FREQUENCY BAND

**Submission by StarHub Mobile Pte Ltd to the Info-
communications Development Authority of Singapore**

26 April 2010

Contact Details:	StarHub Mobile Pte Ltd 67 Ubi Avenue 1 #05-01 StarHub Green Singapore 408942 Phone: +65 6825 5000 Fax: +65 6721 5002 Tim Goodchild Email: timothy@starhub.com
-------------------------	---

1. General

StarHub Mobile Pte Ltd ("StarHub Mobile") welcomes the opportunity to provide feedback to IDA's consultation on allocation of 3G spectrum in the 1900/2100 MHz frequency band.

StarHub Mobile agrees with IDA's assessment that demand for 3G services will continue to grow steadily, driven by the increasing availability of new smart phones and mobile applications. Therefore, to meet this growing data consumption by end users, existing mobile operators will need to increase the capacity of their 3G networks.

However, StarHub Mobile is concerned with IDA's proposal to allocate the remaining 3G spectrum by way of a combinatorial auction format, as this would drive up the cost of spectrum and delivering of 3G services. This would in turn undermine the adoption of the services by end users. StarHub Mobile believes that the additional 3G spectrum should be granted by way of an administrative allocation. If demand for 3G spectrum is limited to the three existing mobile operators, we propose that IDA and mobile operators take a collegial approach towards the allocation of the 3G spectrum that will best meet the interest of the industry and consumers.

StarHub Mobile provides its comments to the consultation in the following section.

2. Specific Responses

IDA invites views and comments on whether IDA should make available the remaining 2 x 15 MHz of paired spectrum in the 3G Band in three separate lots.

StarHub Mobile agrees with IDA's assessment that demand for 3G services will continue to grow steadily. Mobile broadband data traffic will increase, driven by the increasing availability of new smart phones and mobile applications. By way of an example, StarHub Mobile's mobile data traffic grew by 430% in 2009, to 7243 terabytes. Therefore, to meet this growing data consumption by end users, existing mobile operators will need to increase the capacity of their 3G networks.

Therefore, StarHub Mobile supports IDA's proposal in making available the remaining 2 x 15 MHz of paired spectrum in the 3G Band in three separate lots.

IDA invites views and comments on the technologies that are developed for use for the unpaired spectrum. IDA also invites views on the demand for the unpaired spectrum. In particular, do you agree with IDA's assessment to reserve the unpaired spectrum for experimental, temporary and trial use to facilitate innovation?

StarHub Mobile's assessment is that there is unlikely to have any commercial interest for the unpaired spectrum in the 3G Band. Therefore, StarHub Mobile supports IDA's proposal to set aside this remaining 5 MHz of unpaired spectrum for experimental, temporary and trial use with the aim of facilitating the development of technologies and commercial deployment in this spectrum in future.

IDA invites views and comments on the proposed auction parameters including the auction format. Do you agree with IDA's proposal to adopt the combinatorial auction format based on a one-time sealed bid submission if the number of potential bidders is small?

StarHub Mobile is concerned with IDA's proposal to allocate the three 2 X 5 MHz 3G spectrum lots by way of an auction. IDA views that the auction will ensure that the scarce spectrum resource is allocated in the most efficient and transparent manner.

However, we would submit that the additional 3G spectrum should be granted by way of an administrative allocation (instead of conducting an auction) for the following reasons:

- Existing mobile operators clearly require additional 3G spectrum to meet the growing demand of 3G services. As IDA has noted in the consultation paper, demand for 3G services will continue to grow steadily. IDA also expects mobile broadband data traffic to increase substantially, as smartphones become more pervasive and applications become more data and bandwidth intensive. To meet this growing consumption, incumbent mobile operators will need to increase the capacity of their 3G networks.
- Allocating spectrum by way of an auction would increase the cost of supplying 3G services. As IDA would be aware, existing operators have already expended heavily in resources for the rollout of 3G services. Allocating spectrum by way of an auction would further increase the cost of supplying 3G services and undermine the adoption of the services.
- Instead of conducting an auction, IDA should first assess whether the demand for the spectrum would indeed outstrip supply. We would note that the 900/1800MHz spectrum allocation exercise in 2008 highlighted an absence of demand for mobile spectrum in Singapore, other than from the three existing mobile operators. If demand for 3G spectrum is limited to the three existing mobile operators, we propose that IDA and mobile operators take a collegial approach towards the allocation of the 3G spectrum that will best meet the interest of the industry and consumers.

StarHub Mobile is also concerned with the auction parameters proposed by IDA, which appears to needlessly drive up the cost of spectrum. Under the proposed auction parameters, IDA proposed to limit incumbent operators to a maximum of 2 lots of spectrum. This is to prevent unnecessary spectrum hoarding as well as the concentration of spectrum in the 3G Band to any one operator. StarHub Mobile submits that if IDA is concerned with the unnecessary hoarding as well as the concentration of spectrum in the 3G Band to any one operator, IDA should limit all operators to a maximum of 1 lot of spectrum.

IDA also proposed to adopt the combinatorial auction format based on a one-time sealed bid submission. Through such auction, IDA will determine the combination of bids across bidders that maximises total value of the spectrum. The lots are then assigned to the bidders, based on this "winning combination". IDA also explained that the combinatorial auction format allows a new entrant to minimise its aggregation risk (i.e. the risk that a new entrant will get stranded with one lot without getting the other lots it needs to set up its network).

StarHub Mobile submits that such combinatorial auction format may not be a fair and transparent approach, and could generate considerable amount of uncertainty. For example, in IDA's illustration of how the auction would work, if the Bidder 2 now places

a bid for lots A and B (e.g., \$45 million), it is unclear how would the spectrum lots be allocated to the bidders.

The combinatorial auction format may also result in a situation where one bidder could benefit in the allocation of a lot due to a winning combination that is attributed to other bidders. Conversely, a bidder who places a fair market value on a preferred lot may not be allocated with that lot because of a winning combination caused by other bidders. While IDA seeks to help new entrant to minimise the aggregation risk through this combinatorial auction format, this may result in existing operators having no additional spectrum to cater for 3G services expansion. We note that the combinatorial auction format was not considered necessary for IDA's recent PCMTS and WIMAX spectrum allocation.

We therefore submit that a combinatorial auction format is unsuitable for the Singapore 3G spectrum auction.

IDA also invites views and comments on whether any guard band should be provided between the 3 lots of 2 x 5 MHz spectrum and the amount needed to manage potential interference.

StarHub Mobile's assessment is that it is not necessary to provide any guard band between the 3 lots of 2 X 5 MHz spectrum. StarHub Mobile believes that the mobile operators could coordinate among themselves to manage the interference. This practice has been in place and has been working well thus far.

3. Conclusion

StarHub Mobile welcomes the opportunity to provide feedback on IDA's consultation on allocation of 3G spectrum in the 1900/2100 MHz frequency band.

StarHub Mobile agrees with IDA's assessment that demand for 3G services will continue to grow steadily, driven by the increasing availability of new smart phones and mobile applications. Therefore, to meet this growing data consumption by end users, existing mobile operators will need to increase the capacity of their 3G networks.

However, StarHub Mobile is concerned with IDA's proposal to allocate the remaining 3G spectrum by way of a combinatorial auction format, as this would drive up the cost of spectrum and the delivery of 3G services. This would in turn undermine the adoption of the services by end users. StarHub Mobile believes that the additional 3G spectrum should be granted by way of an administrative allocation. If demand for 3G spectrum is limited to the three existing mobile operators, we propose that IDA and mobile

operators take a collegial approach towards the allocation of the 3G spectrum that will best meet the interest of the industry and consumers.

StarHub Mobile is grateful for the opportunity to comment on this matter. We would also welcome the opportunity to discuss the allocation of 3G spectrum with IDA in greater detail.

StarHub Mobile Pte Ltd
26 April 2010